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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/874,313	06/06/2001	Shingo Ishimaru	Q64849	6162

7590 01/06/2004

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EXAMINER	
ANGEBRANNDT, MARTIN J	

ART UNIT	PAPER NUMBER
1756	

DATE MAILED: 01/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

5A

Office Action Summary	Application No.	Applicant(s)	
	09/874,313	ISHIMARU ET AL.	
	Examiner	Art Unit	
	Martin J Angebranndt	1756	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10/14/03* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3 and 5-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3 and 5-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

1. The response provided by the applicant has been read and given careful consideration. Response to the argument made by the applicant are presented after the first rejection to which they are directed. Rejections of the previous office action not repeated below are withdrawn in view of the amendment to the claims.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1,3, and 5-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iida et al. '961, in view of Murray et al., "Synthesis and Charachtorization of nearly monodisperse CdE ....", J. Am. Chem. Soc., Vol. 115(19) pp. 8706-8715.

Iida et al. '961 teach dispersal of semiconductor particles of 0.1 to 50 nm, preferably 0.5 to 30 nm in a matrix of an organic polymer or inorganic glass material. (3/9-20). Useful semiconductor materials include CdS, CdSe, CdSSe and CdTe. (2/58-66). When preparing the embodiments using a resin matrix a solution of the semiconductor particles is mixed with the

resin solution and spin coated. (3/47-41). The laser used is between 310 and 890 nm. (4/1-5) The use of protective dielectric layers between the shutter layer and the substrate and/or the reflective layer is disclosed.

Murray et al., "Synthesis and Charachtorization of nearly monodisperse CdE ....", J. Am. Chem. Soc., Vol. 115(19) pp. 8706-8715 teach methods for producing CdS, CdSE and CdTe sols of fine particles having diameters of 1.2 to 11.5 nm. (abstract). Trioctylphosphines of Te and SE were prepared and mixed with dimethylcadmium with stirring and heating at 230-260 degrees. These are isolated and purified by cooling to 60 degrees C and adding methanol to flocculate the crystals, followed by centrifugal separation. The flocculant is then re-dispersed in butanol to form a clear solution, solids removed, methanol added to remove the excess TOP and TOPO, followed by re-dispersion. The CdSe nanocrystallites can be re-dispersed in a variety of solvents including alkanes, (hexane page 8707, upper right column), aromatics, long chain alcohols, chlorinated solvents, and organic bases (amines, pyridines, furans, phosphines). (page 8707/lower left column) The CdSe nanocrystallites are disclosed as being stabilized (from agglomeration) by a coating of alkyl groups anchored to the surface by phosphineoxide/chalcogenide moeities. (pages 8708, bottom left to top right columns)

It would have been obvious to one skilled in the art to use the old and well known CdE sol preparation method of Murray et al., "Synthesis and Charachtorization of nearly monodisperse CdE ....", J. Am. Chem. Soc., Vol. 115(19) pp. 8706-8715 when preparing the polymer matrix embodiments of Iida et al. '961 with a reasonable expectation of success based upon the sizes of the particles being within the desired range and this being an old and well known preparation method congruent with the teachings concerning the polymer resin

embodiments. Furthermore, it would have been obvious to one skilled in the art to provide the protective layers as described to protect the recording and shutter layers from oxygen intrusion or inadvertent mechanical damage.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). The Murray reference does teach forming particle sizes of 1.2 to 11.5 nm as discussed above and the benefit of reduced agglomeration would be desirable in the medium of Iida et al. '961, therefore the combination of references is proper. The utility of the semiconductor particles in optical recording layers is established in Iida et al. '961. The examiner notes that the argued re-writable limitation is not recited in the claims, nor is there a demonstration of improved sensitivity on the record, which is of the same scope as the coverage sought (only AgTe, AgInTe and CuInTe materials). The argued comparative data in samples 10-12 of table 1 do not form particles in an organic matrix and therefore are not better showings than a direct comparasion with the primary reference. The rejection stands.

5. Claims 1,3 and 5-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ichihara et al. '756, in view of Ito JP 62-270386 and Iida et al. '961, further in view of Murray et al., "Synthesis and Charachtorization of nearly monodisperse CdE ....", J. Am. Chem. Soc., Vol. 115(19) pp. 8706-8715 and JP 62-125550.

Ichihara et al. '756 teaches phase change optical recording materials where the phase change materials are particles dispersed in a matrix, such as a polymeric resin. (6/13-46) The

size of the particles may be 1-20 nm. (6/2). Other phase change recording materials are disclosed. (4/9-14).

Ito JP 62-270386 teaches powdered or particulate optical recording material dispersed with a organic substance to prevent flocculation/precipitation and an organic resin. Useful particulate materials include phase change recording materials such as GeTe, GaTeSe, PbTeSe, TeO_XGeSn and others. (page 2/bottom left column) The chemical formula of the dispersant is disclosed in the examples.

It would have been obvious to one skilled in the art to modify the process of Ichihara et al. '756 by coating the 1-20 nm GeTeSb phase change recording media particles using the process of Ito JP 62-270386 to disperse them into the resin to remove the need for a sputtering step with the apparatus and time involved and replace it with a spin coating process including the resin and the stabilized particles as this is less equipment intensive and cheaper with a reasonable expectation of success based upon the disclosure of Iida et al. '961 that within the optical recording media art, it is known to disperse particles into polymeric matrices in this manner and further in addition to the basis provided above, the examiner holds that it would have been obvious to modify the combination of Ichihara et al. '756 with Ito JP 62-270386 and Iida et al. '961 by an analogeous process to that of Murray et al., "Synthesis and Charachtorization of nearly monodisperse CdE ....", J. Am. Chem. Soc., Vol. 115(19) pp. 8706-8715 to prepare the colloidal/particulate phase change materials with a reasonable expectation of success based upon the disclosure that trioctylphosphine prevents flocculation as does the dispersant in the Ito JP 62-270386 reference and the known use of solgel/wet processing techniques in forming phase change recording layers as evidenced by JP 62-125550.

The rejection stands for the reasons provided above without further comments as no other arguments were presented.

6 **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7 Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin J Angebranndt whose telephone number is 571-272-1378. The examiner can normally be reached on Monday-Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9309 for regular communications and 703-872-9309 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Martin J Angebranndt
Primary Examiner
Art Unit 1756

December 23, 2003